as a replacement gastrostomy tube. The distal end **28** of the catheter shaft **12** as well as the then unexpanded expandable component member **38** pass through a plurality of tissue layers: the epidermis **51**, fat **52**, muscle layer **53**, peritoneum **54**, and ultimately through stomach lining **55** and mucosa wall **56** as set forth in FIG. **5**.

Once the balloon portion of the tube has entered the stomach, the balloon **38** is expanded using conventional means in cooperation with valve means **26**. Such conventional expansion means often make use of a syringe, especially one filled with saline solution. The catheter shaft is then retracted through the stoma **50** as far as possible until the proximal wall portion **58** of the expandable component member **38** comes into contact with mucosa wall **56**. The balloon "sits" into or comes in contact with the mucosa wall thereby forming a sealing mechanism for the stoma **50**. The retention device **43** may then be placed directly adjacent epidermis **51** as is shown in FIG. **5**. Cooperation between the expandable component member and the retention device places the proper tension on the tube which prevents the undesirable movement of the gastrostomy tube further into the stomach or the undesirable withdrawal of the gastrostomy tube through the stoma.

Feeding may then commence by the securing of an enteral feeding set adapter (not shown) to the main port **20**. In the event that medication needs to be administered or that gastric suction must occur, access is provided to the feeding lumen through Y-port **22** and a Y-port channel **59** as shown in FIG. **4**. Additionally, as can be seen, the diameter of the main port is greater than that of the Y-port **22** such that the gastrostomy tube of this invention permits immediate adaptation to smaller feeding adapters without the necessity of disconnecting the pump set from the main port, adding an adapter and thereby risking potential contamination.

Another important aspect associated with this invention is its ability, due to the substantially circular cross-section **36** of feeding lumen **14**, to easily accommodate a jejunal tube **60** as is shown in FIG. **6**. Nine and twelve French "J" or jejunal tubes can be accommodated in a "G" or gastrostomy tube with respective sizes of **14** and **18** French if constructed in accordance with this invention. The Jejunal tube passes through the gastrostomy tube of this invention thence through the stomach, past the pylorus, and into the small bowel. Once in the small bowel, the jejunal tube **60** passes through the duodenum **63** and preferably terminates in the area of the jejunum **64**.

Yet another important advantage associated with this invention is the reduced kinking radius associated with the catheter. One aspect of this invention resides in the discovery that by providing a feeding lumen of circular cross-section, the catheter is able to have increased kink resistance for a given outer diameter. The inventors herein have determined that increased kink resistance is achieved when the inside diameter of the feeding lumen is 64 to 72% of the outer diameter of the catheter. When a gastrostomy tube is replaced, proper sizing of the replacement tube is critical. The stoma is measured {usually using French sizes}and the largest outside diameter tube that will fit inside the stoma is chosen. For a given outside diameter it is desirable to have as large an inside diameter or feeding lumen as possible. A large inside diameter tube will lessen the changes of occlusion which is the primary cause of tube replacement.

It is also desirable that the tube not kink when subjected to ordinary movements of the patient. A kink in the feeding tube occludes the feeding lumen and thus prevents proper patient feeding. Kink resistance is typically measured in terms of kink radius. Kink radius is determined by bending the feeding tube around mandrels of decreasing diameter until it kinks. In general, the thicker the tube wall, the lower the kink radius. However, increasing wall thickness decreases the feeding lumen size for a given outside diameter.

The inventors herein, through experimentation and observation, have determined that for a given outside diameter the inside diameter of the feeding lumen should be from 64 to 72% of the outside diameter. This **64** to 72% of the outside diameter for the inside diameter of the feeding lumen provides maximum feeding lumen inside diameter without sacrificing kink resistance and forms one aspect of the present invention.

INDUSTRIAL APPLICABILITY

Over 20,000 Americans are currently being fed via gastrostomy tubes. The enteral feeding industry has long sought ways to reduce retraumatization, especially when a patient must be fed by a jejunal tube instead of solely by a gastrostomy tube. Until now, the decision to utilize a jejunal tube has been coupled with the necessity of retraumatizing the patient to replace the gastrostomy tube then in use. Additionally, the industry has sought ways to minimize the potential for contamination due to multiple hookups to a pump set and to permit gastric suction without disconnecting the patient from the pump set. This invention solves these long felt needs. All the advantages of this invention would be found extremely beneficial by physicians and health care providers.

While the form of apparatus and method herein described constitute a preferred embodiment of this invention, it is to be understood that the invention is not limited to this precise form of apparatus or method and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. A replacement gastrostomy tube comprising:

a catheter shaft having a wall with an outer surface, a proximal end and a distal end, said shaft enclosing a feeding lumen, said feeding lumen having a substantially circular cross-section which permits the passage therethrough of a separate jejunal tube, and a fluid flow channel embedded within the wall of the shaft, the inside diameter of the feeding lumen being 64 to 72% of the outside diameter of the catheter shaft;

a food outlet port of said feeding lumen being located at said distal end of said catheter shaft;

a component member which is expandable when a fluid is injected therein is secured to the outer surface of said shaft wall with said fluid flow channel opening into the expandable component member; and

a port housing located at said proximal end of said catheter shaft, said port housing having a main food inlet port which communicates with said feeding lumen, a Y-port providing access to said feeding lumen through a Y-port channel, the inside diameter of the main port being greater than that of the Y-port, and a fluid inlet port which communicates with said fluid flow channel.